Deber 50
Estatica

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1) $T_{AB} = 555N$

$\overline{AB} = \langle 0,75, 7, -6 \rangle$

$|\overline{AB}| = \sqrt{0,75^2 + 49 + 36}$

$|\overline{AB}| = 9,24$

$T_{AB} = 555 \dfrac{\langle 0,75, 7, -6 \rangle}{9,24}$

$T_{AB} = \langle 45, 420, -360 \rangle N$

$T_{BC} = 660N$

$\overline{BC} = \langle 4,25, -7, 1 \rangle$

$|\overline{BC}| = \sqrt{16 + 1 + 625}$

$|\overline{BC}| = 8,25$

$T_{BC} = 660 \dfrac{\langle 4,25, 7, 1 \rangle}{8,25}$

$T_{BC} = \langle 340, -560, 80 \rangle N$

$R = R_{AB} + R_{BC}$

$R = \langle 385, 980, 440 \rangle N$

$M_O = \langle 3080, 0, -2695 \rangle Nm$

2) $M_O = 960Nm$

$d = 2,8m$

$x = \sqrt{3^2 + 0,87^2}$

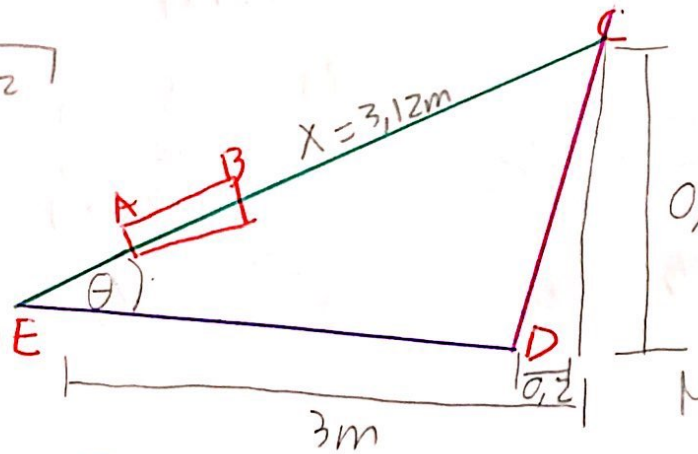
$x = 3,12m$

$\text{Sen}\theta = \dfrac{0,875}{3,12}$

$\text{Sen}\theta = 0,27$

$\cos\theta = \dfrac{3}{3,12}$

$\cos\theta = 0,96$



$F_y = F\text{sen}\theta = 0,27F$

$F_x = F\cos\theta = 0,96F$

$\vec{F} = \langle 0,96F, -0,27F \rangle$

$r = -2,8\lambda$

$M = \vec{r} \times \vec{F}$

$M = \begin{pmatrix} \lambda & d & k \\ -2,8 & 0 & 0 \\ -0,96 & -0,27 & 0 \end{pmatrix}$

$M = -0,75\lambda F\ Nm$

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3) $T_{AB} = 82 lb$

$T_{AD} = 82 lb$

$\overline{AD} = \langle 6, 7.75, 3 \rangle$

$|\overline{AD}| = \frac{\langle 6, 7.75, 3 \rangle}{10.24} 82 lb$

$T_{\overline{AB}} = \langle 47.97, 101.99, -23.94 \rangle lb$

$R = 2F_{AB} + F_{AD}$

$F_{AB} = 2(-82) lb$

$= -164 lb j$

$R = 2F_{AB} + F_{AD}$

$R = \langle 47.97, -225.99, -23.94 \rangle$

$M = r \times F$

$M = \begin{pmatrix} i & j & k \\ 0 & 7.75 & 3 \\ 47.97 & -225.99 & -23.94 \end{pmatrix} = \langle 492.41, 143.91, -371.78 \rangle$

4) $T_{BA} = 57 lb$

$\overline{BA} = \langle -5, 90, -30 \rangle$

$|\overline{BA}| = 95$

$T_{BA} = 57 \frac{\langle -5, 90, -30 \rangle}{95}$

$T_{BA} = \langle -3, 54, -18 \rangle lb$

$R_{CA} = \langle 48, -6, 36 \rangle$

$M = r \times F$

$M = \begin{pmatrix} i & j & k \\ 48 & -6 & 36 \\ -3 & 54 & -18 \end{pmatrix} =>$

$=> \langle -1836, 756, 2574 \rangle$

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